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the CANNON

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Skule Tops in OEDC

Joe Facca (right) receives his first place prize at OEDC '82 from Chairman Brett Calder (centre). For more details on the Ontario Engineering Design Competition, turn to page 4.

Saudi-UofT Exchange

On January 31, 1982, an agreement between King Saud University of Riyadh, Saudi Arabia and the University of Toronto was signed. This agreement provided for the two Faculties of Engineering within the two Universities to exchange technical expertise in the form of Arabian graduate students arriving here and short visits of Skule's professors there. In an interview, Dean Slemon of the Faculty of Applied Science and Engineering at U of T outlined the agreement's details.

Professors will individually or in small groups, go to King Saud University (KSU) for periods of 2, 3, or even 4 weeks to: teach short courses in specialized fields, consult with King Saud's staff on research planning, help plan new facilities at KSU and possibly consult with and direct some of KSU's graduate students. Some professors may stay for longer periods of time, but this will not be within the normal procedures of the Faculty.

At the University of Toronto commencing this fall, Saudi Arabian engineering graduate students will be taking courses within the School of Graduate Studies towards Masters and Doctoral degrees in Engineering. There will be no special status given; the KSU graduates will receive no distinction from any other U of T visa grad student. To help the Saudi students adapt to the U of T, they will be arriving in April or May and taking special preparatory courses until September. No special provisions other than this will be made.

King Saud may also send U of T some staff members for special training, but these would be on a contractual basis. The first professors leaving Toronto for Riyadh, Saudi Arabia will be leaving in the middle and end of April.

As part of the Agreement, King Saud University will pay for all expenses incurred in personal exchange including tuition expenses, residential costs and transportation costs. The Faculty of Engineering at U of T will also charge for the summer preparatory courses given to the Arabian students. Dean Slemon added that the costs to KSU have been worked out to ensure the U of T collects a reasonable opportunity cost for access to our facilities and expertise. Most exchange agreements between universitites call for both parties to contribute financially, but U of T is not in a position to do so. At one time, said Dean Slemon, the U of T could act as an aid agency, but Federal funding would be required today to have such an exchange program with almost any other University.

For the special courses to be taught by U of T professors in Arabia, King Saud U. will request instruction in specific fields or processes. It will then be up to the Faculty of Engineering in Toronto to nominate the best person in that field of expertise. King Saud will tben issue temporary teaching visas to allow the professors to teach in Saudi Arabia. Almost all departments of engineering will be affected by the agreement; KSU has almost all departments of engineering as does U of T. King Saud University will select the graduate students for attendence at U of T. Graduate students from Saudi Arabia will receive no "special" academic treatment but will face the same standards and competition as do all other graduate visa students, not displacing any qualified Canadian candidates. The exchange agreement has a duration of 5 years, upon which it shall be reviewed and either terminated or extended.

Several campus groups have become very concerned witb the U of T/King Saud University Agreement. They have pointed out that Saudi Arabia follows a policy of anti-Zionism and segregation of females and males in the eduacational system. Particular of note is that King Saud U. allows no women to take engineering programs. In addition to classes being segregated by gender, only male professors teach male students, while females teach females. For the occurrences where a professor of the 'correct' sex is unavailable, students learn from video taped lectures. A great deal of concern has been levied toward the fact that the U of T Faculty of Engineering has both female and Jewish professors, and that these people may be discriminated against in the exchange agreement. Although this issue was not addressed in the original Agreement, President Ham has since sent a further letter which makes it clear that "the associated Agreement shall conform to all relevent administrative and institutional policies and procedures of both of the universities." As was agreed, this means that King Saud U. will respect U of T's non-discriminatory policy in addition to all other policies (such as the freedom to disseminate information of research among others too numerous to mention) or the entire Agreement will be terminated.

The Saudi's integrity will be tested from the beginning of the exchange. They have asked for a professor to teacb a short course in the desalination of water, and U of T's expert is Professor Spinner of Chemical Engineering; he is also of the Judaic faith. President Ham gave his personal assurances at

continued on page 2

Election Results

by Barry Levine
Ind Eng 8T4

Following tradition, Engineering Society members went to the polls on March 4th and 5th to elect the 1982-83 executive officers. The newly elected officers are as follows: Wayne Levin, President; Vince Volpe, Vice-President: Administration; Peter Weick, Vice-President: Activities; Andrew Alberti, Treasurer, and Debbie Fletcher, Secretary. Approximately 33% of the Faculty's undergraduate population of 2700 eligible voters came out to the polls.

The $100 fee referendum was beld concurrently with the Society's elections. The result was 68% in favour of the fee, and the number of people voting on the referendum was nearly the same as for elections. The fee, which will become effective beginning in September, will last for a maximum of three years and will be reviewed annually. It is hoped tbat the fees collected, which are to be used for teaching assistants, supplies and equipment, will act as a catalyst in promoting outside sources, particularly engineering alumni, to assist the Faculty financially. The amount collected this coming September from the incidental fee will represent only about 20% of the shortfall in this area.

Shortly after the fee referendum passed, the issue received considerable media coverage outside the University. Vince Volpe, the Society's V.P. Administration was interviewed in the Toronto papers and felt that "students are willing to fork out the money to show (others) how they feel." The media attention came at a time when other students were staging sit-ins and protests against underfunding. Many engineers felt that news of the $100 referendum stole the fire from the protests as it showed that engineers are willing to take positive action regarding underfunding, even if it means paying out of tbeir own pockets.

This Month

Where is the *Toike?*
A former *Toike* editor offers his views on a very controversial topic: whether the *Toike Oike* should continue publishing at all.....page 3

Fuel Cells
One cannot attend U of T Engineering without hearing about Mechaical Engineering's research program into hydrogen fuel. One student discusses tbe basic principles of hydrogen fuel cells.....page 6

Levin Reports
The new President of the Engineering Society discusses several issues important to engineering students. Among these are a new Orientation feature and a semi-campus group called 'OPIRG'.....page 8

the CANNON

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THE CANNON encourages submissions; please type or write legibly. Deadline for articles is one week before publication date, notices and letters by 5:00 p.m. the Friday prior to publication. Comments on THE CANNON or articles appearing in it are appreciated. The editors reserve the right to edit letters for brevity.

Corporate Donations

by Peter Watler and Glyn Jones
Chem Eng 8T4

Now more than ever it is obvious that the Ministry of Colleges and Universities cannot be depended upon for sufficient funding of Universities. Luckily there are other facets through which capital can be generated, one of which is private funding from industry.

Before the University can approach industries for financial support, all campaigns must be organized and coordinated. This is necessary to prevent the same companies from being bombarded from numerous individuals at U of T, all asking for money. To prevent such an occurrence is the job of the Private Support and Private Review Committee (PSPRC) and the Department of Private Funding.

The PSPRC is a subcommittee of Governing Council. Its members include the Principals, Professors and Deans of the University's Colleges and Faculties. Before a funding campaign can begin it must be approved by the PSPRC. Tbe Dean of the faculty must submit the details of tbe campaign and then it is discussed; approval depends on parameters such as: bow many campaigns that faculty has submitted, if any otber campaigns are aimed at the same companies, the amount of money being sought and the importance of what it will be used for.

Here professional faculties cause the most problems, because they generally have similarly aimed purposes for the money. The PSPRC acts as a group judging their peers and sometimes the approval of one campaign over another depends on how eloquent and convincing the speaker presents his case.

Once a campaign has been approved, the next step is a visit to the Department of Private Funding. This department acts as a clearing house, making suggestions as to which particular companies should or should not be approached and helping to solicit funds from those companies.

While the above system is necessary for effective fund raising it creates some new problems. Because of the priority system set up by the PSPRC, if a large project becomes overly important smaller still important projects may be designated low priority and subsequent campaigns denied approval. Such is the case with the as yet unofficial redevelopment of the South-West Campus Project. The redevelopment consists of a new earth sciences-resources complex, which would house the Faculty of Forestry, Botany, and several others. The cost is estimated at $60 million, of which approximately $20 million will have to be generated from the private sector. The University has appealed to the Ontario Government for financial support of the S-W complex. Meetings between top members of the Davis government and industry have as yet been unable to give indications wbether or not industry and governement can afford the project. So the possibility exists that the S-W campus could be scrapped.

During interviews with Prof. Ken Bartlett of the PSPRC and Robert Howard of the Departtment of Private Funding, the question of why have funding drives by the University slowed down in the last three years and tbis year in particular was raised. The first reason was that the last few years were the tail end of Project Update and enthusiasm had faded. The main justification lies in the mechanics of fund raising. Each year companies are approached by Universities, charities such as tbe Heart Fund, and various museums, all wanting money. Companies give money because it is a good method of cheap advertising. In order to appear interested in their product, corporation heads feel obligated to support those affected by it. Thus Kraft may give money to a Food Study campaign.

The list of people wanting money is long and the companies try to sborten it. For instance if the U of T went to a company and asked for $50,000 and the President of the company happened to remember that the U of T Moon Studies Club asked for and was given $500 6 months ago he would be 'off the hook' with the excuse that U of T had already been given a donation.

Large corporations usually do not give small grants every year but give larger donations on a rotational basis. Thus while large donations were given at the start of UPDATE, it is not the U of T's turn for a donation yet. The giving of donations in cycles is also another way in which a company can 'get off the hook'. If for example the U of T Moon Studies Club asked Texaco for $500 to buy a lens, that company would not by obliged to give the University money until another full cycle passed, which could be 5 or 10 years. Thus when a large grant of bundreds of thousands of dollars for the S-W complex was requested, it could justifiably be turned down. Some companies are always looking at the prospect of giving a small donation and the chance to opt out of the major projects. For this reason the smaller campaigns must be carefully monitored especially now with the possible upcoming $20 million S-W project.

The question concerning engineering students and staff is that if the S-W campaign does materialize, how will tbe Faculty obtain monies from private funding. The $100 incidental fee will be very helpful. According to Robert Howard tbe $100 fee will bave a tremendous impact on private funding. Many companies look for a recipient that shows initiative and is also a good cause. Tbe fee demonstrates tbis and would increase tbe priority of Engineering for company donations. It may also open up the road for donations from companies that bave never given to the University before. Dean Slemon will also have a better position to request the PSPRC to approve an engineering campaign because of the positive initiative displayed by engineering students. Tbis, combined with the better accessability of companies will mean more campaigns for engineering and hopefully more money. Thus the $100 fee has the potential in public relations of several times its numerical value.

The alumni Varsity Fund will also benefit from the fee. The Dean will now be in a position to ask for increased giving from the alumni as tbe much poorer students are voluntarily giving more money.

If the S-W complex campaign does become a reality, the Faculty should try to become a part of it. Project Update contained over 90 small projects and since the Faculty is geographically close to the S-W campus, it could easily be incorporated into the campaign. It is vital for the Faculty of Engineering to become involved as a part of S-W Project because both parties appeal to the same companies for funding. And if Engineering is left out, there will be few companies from which to solicit monies.

To solve the problems created by smaller campaigns, the PSPRC and Department of Private Funding should consolidate these and form larger drives, setting aside some of the undesignated funds collected from other campaigns. For instance, in return for help in another campaign the Moon Studies Club would receive $500 directly from the University's "undesignated fund". The interference in larger compaigns caused by smaller drives would be alleviated. Engineering students have demonstrated their interest in the funding situation via the incidental fee; it is imperative that we follow it up and ensure that the Faculty resumes its place at the apex of Engineering schools.

Private funding will be an important aspect in supplying and equipping engineering laboratories.

Exchange Cautiously

The Saudi Arabian/U of T Agreement is a controversial one, as can be seen from the responses of campus groups and many people on Governing Council. These people have protested Saudi government policy in that the Arabians openly discriminate against women and Zionists. While this policy is deplored throughout Canada and the University of Toronto, our response should not be one of discriminating against the discriminator. No one gains.

Granted, we should enter into the Agreement *prepared* to act upon any discrimination practiced toward U of T personnel, though hopefully we won't see any. The University of Toronto's position is clear: the dissemination of information and ideas is more important than specific political, religious or cultural beliefs. And the opportunity to enter into an exchange is a relatively rare one, especially when it doesn't cost the U of T anything.

We should look upon the exchange as a chance to show the Saudi's how our system works, the freedom it allows and human potential being met. It may educate them far beyond that which they learn in the classroom.

President Ham, in incorporating a clause into the Agreement to protect U of T policies (the clause is all-embracing and includes non-discrimination) bas provided sufficient safeguards. While individual acts are open to interpretation as to whether or not discrimination has occurred, U of T has that final interpretation and may cancel the agreement anytime. The administration has pointed out that this is the first time such a "policy protection" clause has appeared as part of an exchange agreement, and that a separate anti-discrimination clause would be redundant.

In short, we really have nothing to lose and everything to gain if the exchange works well. For tbe possibility of the Saudi's inability to honour the contract, the U of T has the right to cancel tbe Agreement forthwith.

Dean Slemon has assured everyone that the Saudi's policy is something we can work around for the benefit of both schools. Scientific exchange has progressed across physical and political borders for many years; there is no reason it cannot continue across cultural ones. We should participate in the exchange, but we should be cautious about it and adhere uncompromisingly to our own policies.

Saudi Exchange

continued from page 1

a Governing Council meeting on Thursday, March 25 that discrimination by the Saudi's against U of T personnel will bring about immediate termination of the agreement. Dean Slemon agrees but adds that he does not forsee discrimination as tbe focus of the Agreement. As a University, the U of T is involved in a world-wide flow of knowledge and ideas, across political and physical barriers. Having an exchange program with King Saud U. does bring a portion of the Middle East conflict to the St. George Campus, but it is not the University's position to take sides on such issues, added Slemon. He further said, "There is a problem when the University's position is not understood and it is assumed the University is taking sides. There are things the Americans do that we don't agree with but we exchange ideas with them. I believe that politics should not be a barrier to scientific interchange and that this continued interchange helps for world-wide peace, stability and the working together towards mutually satisfactory solutions."

WHERE IS THE TOIKE?

by John Van Lierde
Elec Eng 8T3

Occasionaly the question is heard "when is the next *Toike* coming out". A fair question. A publication that usually appears eight times in the course of the fall and spring terms has only appeared three times this year. One editor has resigned. There have been rumours of other editors appearing on the scene, but nothing has happened. Neither staff nor writers nor general all 'round spirit for the *Toike* have been seen recently.

The situation is, to say the least, abysmal. The students do not seem willing to get involved. The Society, while providing office space (which *the Cannon* and yearbook need anyway) has adopted a laissez-faire attitude towards the *Toike*. At this point there are few people left who remember what the *Toike* is about, or what it is supposed to do.

There is no record of the Toike's history, either formal or informal, beyond a collection of yellowing archive copies. Generally speaking however, the *Toike's* precursor was a serious technical journal. Gradually it left this format and student activities became its main focus. The mood of these articles was frequently humorous, if only to make the material more readable. In more recent memory, editors started to use humorous articles that had nothing to do with student activities, if only because there was a shortage of the real stuff. "If a little blatant filler can fill a little space, then a lot could fill the whole paper." Make-ups became more lavish to attract more writers and somewhere along the way print runs suddenly went from a few thousand issues to *twenty thousand* distributed not only all over the St. George campus, but Scarborough and Erindale as well.

None of this has happened with the formal approval of the Society. What the Toike has done and where it has gone has been entirely on the editors' initiative. If an editor wanted to hold make-ups at La Scala restaurant, he could. If the editor wanted to spend more money than the paper was earning in advertising, he could. Engineering activities could get short shrift as he devoted entire issues to, say, the kinky habits of squirrels in Queen's Park.

The position and responsibilities of the Toike editor have never been formally defined. Theoretically, he can do anything he wants. He is not directly responsible to students or the Society, even though they may be supporting his activities.

The definition of the Toike has changed radically in the past few years. To quote the editor's write-up in this year's F!rosh Handbook, 'The Toike Oike . . . is the humour publication on campus.' That was the first statement he makes about the Toike, and although subsequent mention is made of engineering activities, the main impression that we're left with is that the Toike serves the university, and not the engineers.

OEDC Entry Deadline Dec. 4

The Glob and Male

CANADA'S NATIONAL SNOOZEPAPER

THURSDAY, NOVEMBER 26, 1981

Simpletons sweep stares

SAC sacks Soc

U of T bans fun

Ham hides $16M

Davis and Tories face eviction

Will we see more of these *Toikes* in the future?

How did this happen? Successive editors have succeeded in totally altering the course of the Toike. The emphasis has shifted from lots of student engineering related stories with some humour to all humour with little or no engineering. And as far as the humour is concerned, it has been a shift to quantity from quality.

Ah, quality? Successive editors believed that if they improved the quality of the paper it would attract more people and eventually it would become self-sustaining again. There have been campus wide appeals for staff, but with no luck. After all, why should artsies work for an engineering paper? Ironically, engineering students don't work for the *Toike* because they can't identify with it (honestly now, would you be proud to say " . . . and then an elephant shits on her while someone stuffs a dead baby up her snatch!"). Humour is, as they say, the spice of life, but it takes a lot more than spice to keep a paper going.

In all, in the past few years the *Toike* has not lived up to the name "student newspaper". The quality has been lacking and its editors have been, at worst, irresponsible, and at best, so overloaded that ultimately they could not be responsive to the needs of engineering students and Eng Soc.

What will happen? I can see three possible scenarios.

1. Pretend There's Nothing Wrong. The easiest and worst possible course of action. Future editors will continue to appear, work their asses off with little or no help and ultimately fail. Occasionally, there might be an editor who manages to get it all together, but that would be a fluke and it certainly wouldn't last.

2. Kill the Toike Entirely. Not the most satisfying solution.

What's worse is that this wouldn't solve any of the real problems. Killing the Toike doesn't protect the Soc's other publication, the Cannon, from a similar fate. Compared to the Toike, the Cannon is nothing more than a baby, young and impressionable. There is absolutely nothing to prevent the Cannon from becoming the Toike Oike of 2001.

3. Eng Soc Can Get Its Act Together. This last scenario is the hardest to implement and perhaps the most unlikely to occur.

It starts with the realization that Eng Com is the Society's greatest asset. It is capable of producing professional quality publications, such as the Cannon, the F!rosh Handbook and the Book of Skule. It possesses considerable talent, spirit and production expertise. Unfortunately, like so many mice on a treadmill, it's working hard but not getting anywhere.

What to do.

First, we could start with a real honest-to-goodness policy for Engineering Society publications. Such a policy should take into account:

i. *The direction of the publication.* You can't have a successful paper without a direction. Humour serves no purpose and as such is not an acceptable mandate.
ii. *The content.* Having established what a publication is supposed to do, how will it accomplish its goal?
iii. *Distribution.* Does Eng Soc need campus wide distribution?
iv. *The position of editor.* How is the editor chosen. If an editor is found to be unsatisfactory, how can he be removed? Similarly, how can he be protected from unjust dismissal?
v. *Accessability.* Does the paper serve all engineering students? How will grievances and complaints be aired?

Assuming these points ever precipitate any meaningful dialogue, it is quite likely that the subject of editorial review boards will come up.

Editorial boards have not been dreadfully successful as far as the *Toike* is concerned. Possibly, this has been because there has not been an effective editorial policy or maybe the organization of such boards has been inept.

An editorial can be effective in maintaining proper levels of standards and content, if it is administered properly. Such a board should be composed of engineers only - faculty, SAC hacks and feminists have no right to dictate policy to engineers. Furthermore, as the board reviews publications, so too should the EngSoc review the board periodically to ensure that it is free of personal conflicts, political influences and so on.

Having proposed establishing a comprehensive and perhaps involved set of rules for publications, would the *Toike* survive in such an environment?

The great attraction of the *Toike* is its spontaneity. Its ability to lampoon and parody sets it apart from and above other campus publications. It is the embodiment of the spirit and energy that has made the engineers a dominant force on campus. This is the tradition we have to protect and maintain.

The *Toike Oike* is an important part of engineering at the University Of Toronto and I believe it should continue. Unfortunately, the *Toike* of today is not the *Toike* I worked on three years ago. The tradition has been lost, the spirit and morale are so low as to be, superficially at least, non-existent.

It is time to take positive measures in bringing the *Toike* back to life. It is a spirit problem, but more importantly, it is an EngSoc problem and it is EngSoc that will have to address this problem effectively if we are ever going to see real *Toikes* again.

Opportunity Knocks

by John Samochin
exiting *CANNON* editor

The end to any task, expecially a year long one, always gives a person a sense of accomplishment, pride and general well-being. However, it is also a time for reflection upon what has been done, what the future holds, and what will happen to one's labours. Finishing a year of editorship arouses these same emotions.

To those who worked on *the CANNON* in submitting material, taking and developing photos, helping with the production, or even those who went out of their way to make sure the periodical was represented, I thank you on behalf of myself and the institution of *the CANNON*. This four year old newspaper means a lot to me, and hopefully the momentum of the last few years will continue to expand its scope while maintaining its integrity and quality.

Two years ago at this time I was worried about *the CANNON*. Every issue that was printed contained a plea for help, and in the fall of that year, I offered to help the then editor, John Voss. The first article I ever wrote, describing the PEY program, was done amid lab reports, problem sets, and notoriously overburdening lectures. I was so afraid that the article was poorly written that I couldn't even proof-read it; I just gave it to the editor (two days after my assigned deadline). When it came out, I couldn't even read it then. The by-line was enough. The editor encouraged (but did not force) me to to write more, and I did. Eventually I even learned to spell.

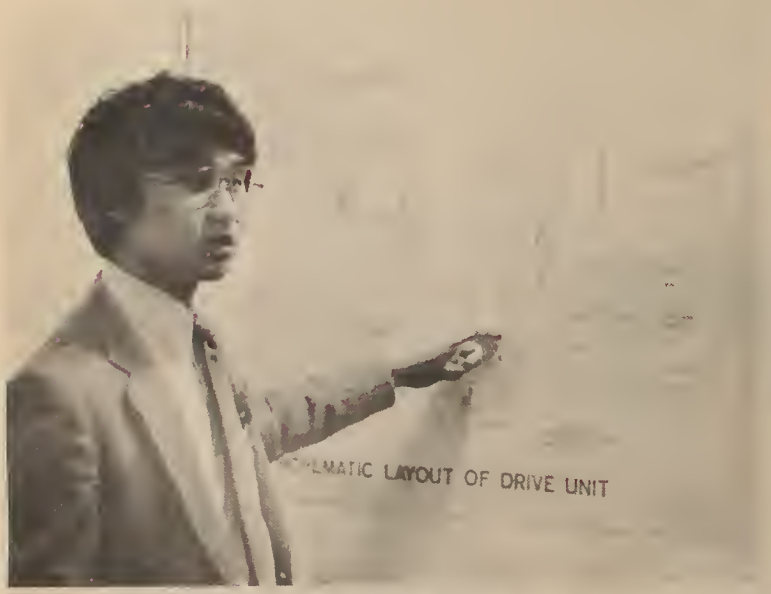
About a year later, once I became editor, I read that first article. It was terrible. Had I been editor I probably would have demanded a rewrite or rejected it on the spot. Reflecting, I sondered why I had been further encouraged; perhaps *the CANNON* didn't want a budding Hemingway. Perhaps the idea behind *the CANNON* was the participation of students and in participating they were the ones who gained. Perhaps they found out a little bit more about Skule and that invisible bond between engineers.

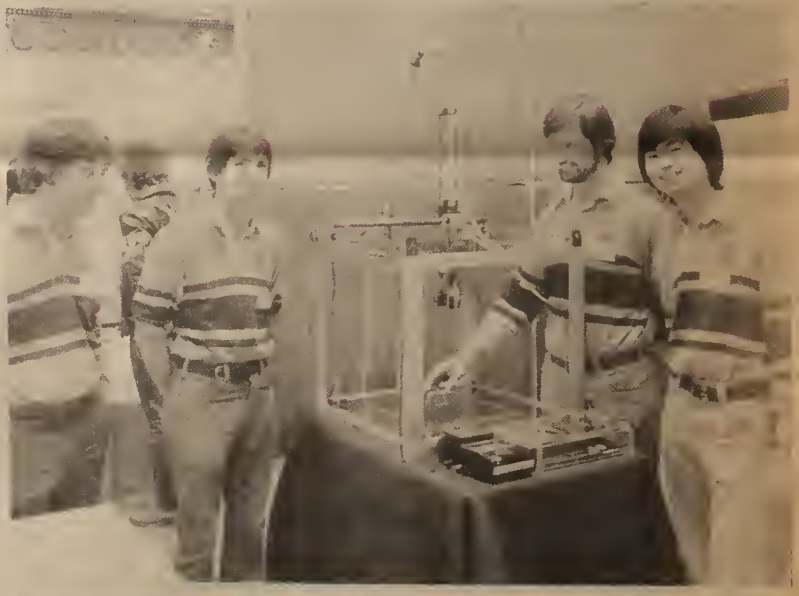
The wider view suddenly hit me: writing for *the CANNON*, working for EngCom, playing in the Bnad, joining the BFC, performing in Skule Nite, being a part of any of the Eng Soc committees, or even participating in Engineering events all amounts to the same goal: becoming a member of Skule (not to be confused with merely attending U of T Engineering).

I am not addressing those who understand what I mean, but those who haven't the foggiest notion of what "Skule" is. It is agreed that we all must work hard in class, and this is an important aspect of Skule. But for the bonds between engineers to be iron, fellowship must arise beyond a common labour: it is built upon participation within the Engineering Society, a labour of love to strengthen our profession.

I realize that this somewhat idealistic view is out of fashion and that I risk personal ridicule. However such opinions would only arise from non-Skulemen, and for these people I feel sad—they will never know what they are missing. Yet all hope is not lost. Simply use the opportunities in front of you to get involved, before it is too late. Be a part of something for next year. I have yet to meet a Skuleman who regrets his contribution.

Ontario Engineering Design Competition





OEDC '82 Winners

Entrepreneurial Design Category

First: **Automatic Control Valve** by Lewis Kaiserseder, U of T

Second: **Microprocessor Based Grain Moisture Analyser**, by Greg Wowchuk, University of Windsor

Third: **Computer Assisted Laser Micrometer**, by Alexander D. Winch, Queen's University

Corporate Design Category

First: **Header Drive for Combines**, by Lawrence Kwan and Albert Li, U of T

Second: **Z-Splicer's Lamp**, by Keith Scott, Queen's University

Third: **Improved Folding Cane**, by Paul Blom, Jack Chappell, U of T

Editorial Communications Category

First: **Industrial Waste Management: Public Opinion and Government Policy**, by Daryl C. F. Wilson, U of T

Second: **Designing for Society: A Policy for Increasing the Practising Engineer's Effectiveness**, by Robert E. Poisson, Bruce Tanaka, University of Guelph

Third: **Defining Technology: The Responsibility of the Engineer**, by Bill Nickle, Mike Belanger, University of Western Ontario

Explanatory Communications Category

First: **The Diagnosis of Atherosclerosis**, by Joe Facca, U of T

Second: **The Transfer of Technology to Third World Countries**, by Nicholas A. C. Mumford, RMC

Third: **Energy: Public Concerns, Risks, and Hazards**, by Greg Evans, Robin Augustine, U of T

Franklin Named to Order of Canada

MMS Professor Honoured

by Gus Rinella
MMS Eng 8T5

This Spring Dr. Ursula Franklin will be travelling to Government House in Ottawa where she will receive the Order of Canada. The award is in recognition of her academic, professional and community endeavours.

The grandeur of the event is in stark contrast to the unassuming and direct manner that one finds when speaking to her. Her work is done from a small office in the smallest Division of the Faculty, the Department of Metallurgy and Materials Science, where the study of ancient materials is her chief interest.

It has been said that metallurgy is one the oldest arts and one of the youngest sciences. Dr. Franklin has spent much time in developing analytical methods for examining artifacts, methods that have won her international recognition and respect. Her affiliation with the Royal Ontario Museum has allowed close examination of the Chinese and Eskimo artifacts that are stored in the large collection. Her expertise in tbese particular artifacts was presented publicly when she was asked to give a paper at the American Association for the Advancement of Science annual meeting in January 1981.

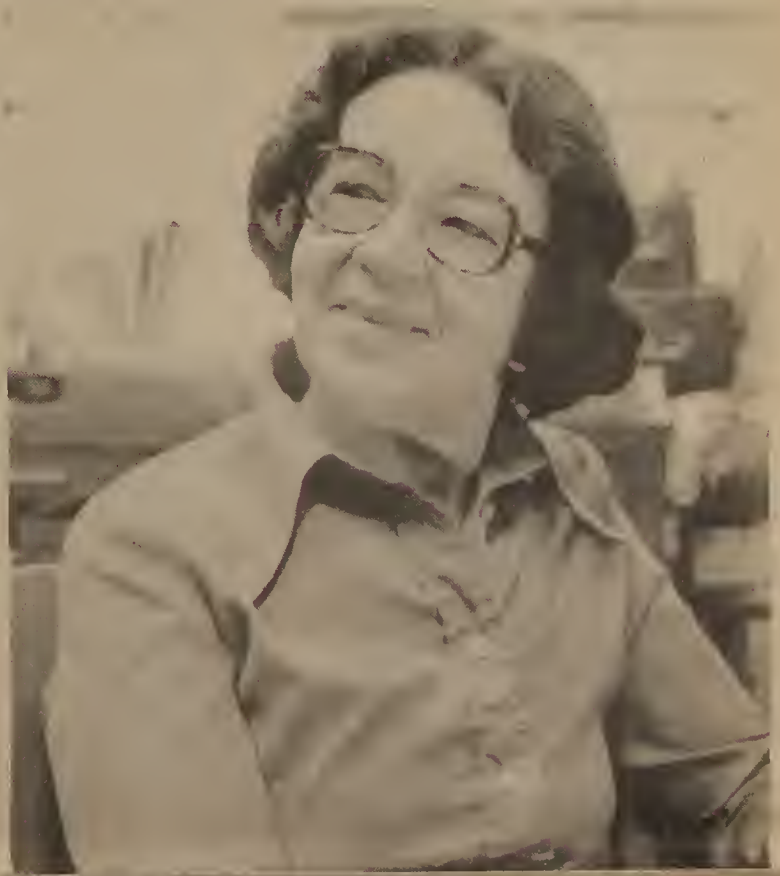
Two examples of her work are examining Eskimo hunting blades and investigating a surface finish found on some Chinese bronze statues. There had been some question as to how the Eskimos would fabricate knives from the lumps of native copper that they found in the Mackenzie River valley. By examining cross-sections of the blades, Dr. Franklin and her students were able to tell that the Eskimos were aware of the processes of work hardening and annealing a metal. The group determined that the Eskimos would simultaneously form and harden the metal by repeatedly beating and folding the piece. The natives would frequently anneal the knife during the construction by heating it in a furnace to relieve the stresses caused by the beating and folding. This annealing process allowed the Eskimos to further work the piece producing a stronger knife.

The mystery surrounding a finish applied to some ancient Chinese bronze figures concerns its method of application. The finish is a mirror black enamel, its compostion determined as chiefly copper and iron with some lead being present. Dr. Franklin maintains that if the enamel was heated to 600°C and then applied, as had been proposed, the lead in the mixture would have melted and then solidified in the boundaries between the crystals of the other metals. However, examination of the piece under a metallurgical microscope has shown the lead to be in small blobs in the metal crystals. She suspects that the actual temperature used was closer to 300°C and that the application procedure might be a long term one. Dr. Franklin mentioned that most of the processes used today in the metallurgical industry are relatively fast compared to the months that may have been spent, say, in a low temperature furnace underground. The secrets to the manufacture of items with this finish were likely lost because they were passed along by apprenticeships and were never recorded. The secrets hold some industrial promise because the enamel is extremely corrosion resistant as well as being aesthetically pleasing.

In addition to her research and teaching commitiments, Dr. Franklin has served on many scientific bodies including the National Engineering and Science Research Council and is presently with the National Research Council. In her term with the Science Council of Canada she chaired a committee that produced the widely read and quoted report entitled "Canada as a Consumer Society". Her work with women's groups and organizations dealing with pollution problems earned her the Award of Civic Merit from the City of Toronto last year.

This latest award will make Professor Franklin an Officer in the Order of Canada. The Order was set up by Parliament after the Crown stopped placing Canadians on the Queen's Honour List. The three ranks of the Order are Officer, Companion and the rarely awarded Commander. Candidates for the Order are nominated by organizations and corporations as well as other members of the Order, and it is the repeated occurrence of tbese mentions of excellence that qualifies one to receive the award. Selections for the Order are made from a wide cross-section of society—the arts, science and engineering, sports, community leaders, or other Canadians that have distinguished themselves. Those in the Order of Canada include such well known figures as former ambassador to Iran, Ken Taylor and his wife, Marathon of Hope runner, Terry Fox, and U of T President, James Ham. It is indeed a great honour to be nominated and something that all students and Faculty members in Engineering at the University of Toronto can take pride in.

Congratulations, Professor Franklin.



Dr. Ursula Franklin of Metallurgy and Materials Science Engineering was recently named to the Order of Canada, joining many other famous Canadians.

TTC Fares Well

byPeter Watler
Cbem Eng 8T4
Eng. SAC Representative

Tbe TTC committee of SAC is once more back at U of T. While committees in the past have accomplished little and faded away, this committee under the "chairpersonship" of SAC director Gregg Schiller is already well on the road since it started less than two months ago.

The committee has three objectives: better transportation for Erindale students who currently have to use 2 transit systems, a nigbtime attendant for the St. George subway station, and most importantly a reduced post-secondary student fare.

The first petition circulated was for the St. George attendant. Over 500 signatures were collected and presented to Alderman Pat Sheppard who has shown a keen interest in the objectives of the group.

Another petition, that for reduced fares, is currently out. These petitions have been distributed to Eng. Soc. class representatives and in just one week over 300 signatures were collected from various engineering classes. If you have not signed and want to, contact your class rep or visit the Engineering Stores where extra petitions are located. Strong support from Engineering is needed.

During the summer the petitions will be presented to the TTC. However Metro Council will decide wbether or not tbe fare decrease will occur since tbey will be picking up the tab. Ove a dozen aldermen have been interviewed and most offer their support. Mucb more has been planned and the prospects look very good.

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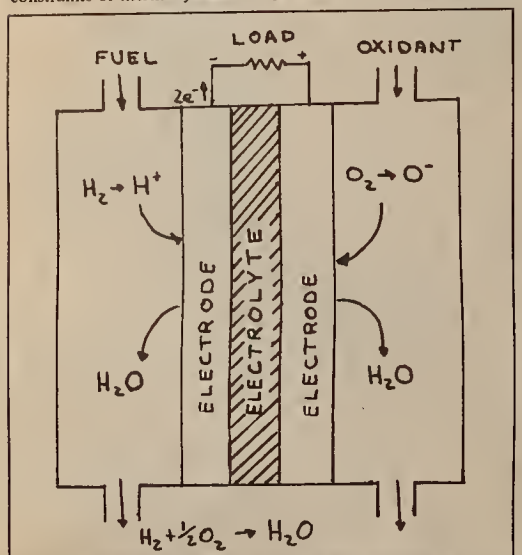
Hydrogen Cell Developments

by Lee Scott
Mech Eng 8T3

The mechanical engineer has historically been involved in the development of machines that do work. The focus of much of their attentions has been on the heat engine. However, the heat engine is severely limited by the constraints of thermodynamics.



Schematic diagram of a typical hydrogen fuel cell.

The processes involved are such that highly ordered energy stored within the fuel is combusted to a state of disorder (heat), and then forced to be converted to work. Consequently, the maximum amount of useful power which can be derived from this disordered energy is defined by that useful power which can be drawn from a Carnot engine, where efficiency is $(T_2 - T_1)/T_2$.

It is this inherent inefficiency of the heat engine which has driven engineers to develop a system by which the intermediary heat-to-work stage of energy conversion could be eliminated. Thus, we come to the subject of this article - fuel cells. The fuel cell does not involve the mechanical to electrical processes, and as such avoids the associated losses of these processes. It is an electrochemical device which allows for the direct conversion of energy as stored in the fuel to electrical energy.

The theory governing the operation of a fuel cell is similar to that of the battery. Two electrodes are separated by an electrolyte and a load is placed across the electrodes to transfer electrons to complete the electro-chemical balance. In the fuel cell, fuel is supplied from outside the electrodes, whereas the battery stores energy in the chemical composition of their electrodes. In the hydrogen-oxygen (H_2 - O_2) fuel cell hydrogen is fed into a cavity behind the anode. At the anode this H_2 is met by two hydroxyl ions. A chemical reaction occurs resulting in two water molecules and two free electrons. These two electrons are carried across the load to the cathode at which time they combine with oxygen to form hydroxyl ions. These hydroxyl ions pass through the electrolyte to complete and continue the electro-chemical process.

The electrodes within the fuel cell are of a porous nature to allow for interaction of the reactants with the electrolyte. It is also important that these electrodes provide an interface between the gases and the electrolyte. This prevents seepage of the electrolyte into the fuel cavities. This interface is accomplished by the creation of a pressure differential between the electrolyte and the gases. In the Apollo fuel cells this pressure differential was sustained by a blanket of nitrogen gas which surrounded the cell and kept the electrolyte at it's pressure, while the gases were pumped in at higher pressures. Another method of circumventing seepage is to create an electrode which has dual porosity, allowing capillary forces to keep electrolyte and gases separate. However, there are fuels which are soluble in the electrolyte, such as hydrazine, eliminating the need for a porous electrode and simplifying the construction of the fuel cell. All porous electrodes are of carbon-metal combination - the metal acting as a catalytic performer. Much of todays research on fuel cells deals with electrodes because many of the losses of present-day fuel cells are encountered in the electrodes.

Loss mechanisms in the fuel cell are known as polarizations, of which three can be clearly defined. These are identified as ohmic, concentration and activation polarizations. Ohmic polarization occurs when electrical resistances occur in the electrode and electrolyte, consequently the electrode is made to be as conductive as possible and the electrolyte is made as thin as possible (this is especially true of solid polymer electrolytes which are extremely susceptible to ohmic losses). Electrode-electrolyte interface starvation of the necessary reactants is considered concentration polarization and may be combatted by the manufacture of an electrode with high porosity to allow for good access of the gases. The third loss mechanism is encountered when the interaction between the fuel and it's electrode is too slow. This is generally known as activation polarization and may be reduced by raising the operating temperature of the cell or increasing activity through the use of catalysts. Thus, it can be seen that electrode research is of extreme significance to the evolution of an efficient fuel cell.

A complete fuel cell is produced by the stacking of many individual cells. It is necessary to achieve good weight-to-power ratios, and so cells are placed together as closely as is mechanically feasible. This close spacing creates many engineering difficulties in the supply of reactants and removal of electricity, heat and water. Structural integrity becomes a serious consideration as electrodes are subjected to loading. There have also been problems encountered with the use of different materials within the fuel cell, as they often have different coefficients of expansion, and consequently subject the system to undesirable stress. One example of stack arrangement has cells lying cathode to anode. This is advantageous in that the cells lying cathode to anode. This is advantageous in that the cells are connected electrically in series - omitting the need for external wiring. Another system has anode to anode and cathode to cathode. This simplifies the reactant supply system because the individual cells may share gas chambers.

There are many fuels which have been used in fuel cells. These include hydrogen, the hydrocarbons and compromise fuels (methanol, ammonia and hydrazine). The hydrocarbon fuels are less reactive than hydrogen and may produce undesirable waste products. However, they are cheaper, easier to handle and are easily adapted to existing energy network. Compromise fuels are less reactive than hydrogen but more so than the hydrocarbons, and often do not need expensive catalysts. Hydrazine has been the most easily applied although it is extremely expensive and poisonous. Ammonia has not been dealt with extensively and methanol needs an acidic electrolyte which demands materials resistant to corrosion. It is also important to note that H_2 -O_2 fuel cells used for aerospace applications have generally had efficiencies of 67%, whereas those using hydrocarbon fuels are generally less than 40% efficient.

Here at the University of Toronto there is extensive fuel cell research being conducted under the general auspices of the mechanical engineering department. According to Dr. R.D. Venter, Chairman of the department, they have decided to work only with H_2 -O_2 fuelled cells with a potassim hydroxide (KOH) electolyte. A component research plan has been established comprising five tasks. Task one exists to develop a range of different catalyst materials and methods of adjoining the carbon with this catalyst. There are, basically, four methods under study at the present time. Dr. L. Pataki with the mechanical department is supervising research into thermodeposition and electro deposition. Thermodeposition involves the dipping of the carbon electrode into a solution containing platinum, allowing the platinum to adhere to the carbon. Electrodeposition studies look at the feasibility of electroplating platinum directly onto the carbon. Prof. M. Dignam with the Chemistry Department is developing sputtering techniques where carbon particles are kept in a vacuum and platinum is sputtered onto the carbon. At York University Prof. B. Lever is researching the electrocatalysis of metalloporphyrins.

The second component of the research plan involves the manufacture of the electrode with a view to obtaining the correct performance characteristics regarding structural integrity, wettability, diffusion and current collection. Volt-ampere plots are examined to evaluate the properties of test cells. All of these tests are short term, with long term tests being done if the electrodes appear to have good characteristics. Task Three is set up to test capabilities while Task Four is responsible for the creation of a fuel cell. Under the supervision of Dr. D. McCammond management of the entire fuel cell system is attempted - control of the H_2 -O_2, electrolyte and heating. The department hopes to have a functioning fuel cell within the next six months. The final component of the research plan is being left unattended presently but will deal with applications and systems design. This should prove to be an exciting field of work, so undergraduates should keep abreast of the studies.

Engineering: A Government View

The following is a transcript of a lecture delivered to U of T engineering students by Dr. G. M. MacNabb, President of NSERC. (Natural Sciences and Engineering Research Council).

As an engineer, I always welcome an opportunity to talk with engineers, particularly engineering students. Working in Ottawa at times dulls the senses and promotes an outlook on life, and on our future, which, can be cynical in the extreme. One becomes overwhelmed by the perceived problems of Canadian society and with the feeling that for every person who is dedicated to doing something about a particular situation, there seems to be at least a half dozen others whose mission in life is to tell him why he should not do it, to regulate him if he does do it and to audit and critique him when he has finished doing it. It is therefore a refreshing change to come and talk with a group of bright, young, potential doers, and to have my batteries of optimism recharged by your enthusiasm and knowledge.

You realize of course that you are an endangered species at the present time. There are more people involved with head counting of engineering graduates these days than there were of the northern caribou herds during the pipeline debate. When I sat down at my desk to sketch out some notes for today, I was able to find within arm's reach no less than five reports dealing with the "crisis" in engineering education, or the "crisis" in Electrical engineering manpower supply. I cannot remember when so much attention and concern has been focused on our profession. Along with this attention goes an acknowledgement (not always public mind you), that engineers, geologists, computer scientists and some of those other "technicians" are essential for economic recovery of this nation. Over the past two decades, we have spawned a multitude of planners, regulators and service industries as if those functions were the be-all and end-all of economic growth. Obviously they weren't, and to a large extent the task of restoring the health of our economy will depend upon you and your colleagues whose job it is to develop new wealth rather than just redistributing the old. It will be challenging, it will be exciting and it will be rewarding. In many ways, I wish I were in your shoes today.

Engineers Unappreciated

Out of these introductory comments, you may get the feeling that I don't always feel that our profession is fully appreciated; you are right, I don't. And it was for that reason that I agreed to come and talk today about the relationship between the engineering community and the rest of society. You should be cautioned however that my views have been nurtured and probably biased by a career which has been totally within the federal public service, albeit in jobs where I have had a continuing working interface with either the business or academic communities. From that vantage point I have been able to make some comparisions of the role and influence of the engineer in those differing environments, but it is still only one person's perception of our profession and how it is viewed by society.

Let me start with the general and end with some specifics. North American Society as a whole does not come anywhere close to the European perception of the engineering profession. In mainland Europe (I exclude Britain which never seems to fit into any generality), engineering is a highly respected and honoured profession and it has held that status in society for a long time. An engineer is viewed in all senses of the word as a professional. In North America, regrettably, the situation is by no means the same. While there are signs of change, I could only classify my impression of society's view of engineers over the past three decades as being largely one of indifference interspesed with periods of outright hostility.

North America vs Europe

Why the difference? I am neither a philosopher nor an historian, but let me suggest a few possibilities. First of all, engineering schools in Germany, Switzerland, France, Holland, for example, have existed as separate university-level institutions for years. A separate identity is therefore clearly established and they are not lost in the generality of the word "science". Second, the association of engineers witb economic growth is very strong in the public mind, engineers are involved with building and with economic development, and that has nearly always been seen in a positive sense in Europe. Lacking the extensive natural resources of North America, Europe has always had the need to improvise and to focus on unique opportunities for development and it has frequently been the engineering profession which has been identified with those successes. And finally, I can't help but think that the role played by engineers in the massive rebuilding which was required following two world wars has had a very favourable effect. In other words, the engineering profession has been largely associated with industry, with business and with either success or recovery.

In Canada, and in North America generally, society and the economic health of the society, have had it much easier. Our very considerable base of natural resources have lessened the need to improvise, to improve and generally to develop that better mousetrap which will give us the edge on the competition. Our most visable engineering successes have, until very recently, been centered in the resource-related industries and in transportation, and those successes have, at best, been taken largely for granted by society. Frequently, and certainly in recent years, society's awareness of major engineering projects has been focussed almost entirely on aspects which are considered almost, if not totally, antisocial. The flooding of a reservoir for hydroelectric power, the disruption of the environment caused by pipeline construction and by transportation corridors, and the mystique but perceived risk associated with candu generating plants. We come to be associated not with the engineering successes and benefits which flow from such developments, but rather with their perceived ills. In short, because we are a profession of doers we become the villains, while the good guys are those fellows in the white hats who argue either that the project wasn't required at all or that there was some unspecified alternative that has no environmental impact. Someone once observed that environmentalists would like people to disappear. I suspect that engineers would be at the top of the proposed hit list.

Put in a slightly different context, a 1977 edition of the new scientist asked the question: "How is it that science has reaped the credit of many of engineering's successes, while engineering has been blamed for numerous scientific disasters?."

To compound this problem of image we have a failing which only recently shows some signs of being corrected — we are terrible communicators. We seldom explain our actions or promote our successes in a way which the general public can comprehend, much less sympathize with. In the early days of television, an actor by the name of Jack Webb played a detective in the series "Dragnet" and became famous for the comment "Just give me the facts Mam". Engineers frequently give so many facts that the message itself is no longer discernable. Ours is an exact and precise science in many ways and we tend to think that the media and the public are similarly inclined; they aren't and they are not about to be so. So if we have a message to deliver, and we should have many, then our whole attitude towards the art of communication must change dramatically. Even then we face an uphill battle because, as doers, we are usually for something. For some strange reason being an advocate is not seen as being nearly as newsworthy by the media as being a critic, regardless of the qualifications of the people involved.

Vince Volpe, newly elected Vice President: Administration is to be congratulated on his committee's work in bringing speakers to address U of T undergraduate engineers.

Science and Engineering

Next, my pet peeve about my profession, and here I draw on my observations as a bureacrat. Why is it that the engineering profession in Canada seems so content to sit back and let the affairs of this country be directed almost exclusively by members of other professions, notably the legal profession, and the economists. And then, we complain about being overregulated or overplanned! No wonder: our parliamentary system and senior levels of the government bureaucracy are almost the exclusive domains of people trained to be regulators or professional planners. Where are the doers rather than the reviewers? Who was the last engineer you can remember as having major political power in Ottawa, or in the provinces for that matter?

Public Relations

I am not suggesting that high profile political involvement by groups of individuals would necessarily improve the public image of engineers; perhaps the opposite at this particular time. However, surely our profession has more than a kibitzer role to play. When I last checked the backgrounds of our elected members of parilament, I could only find six having an engineering or natural sciences background; six out of 282, or 2%. None of those was in the cabinet if memory serves me correctly. Just stop for a minute to compare that with Germany where 71 engineers or scientists sit in their parliamet — 14% of the total. In Japan, 50% of senior civil servants (and also industrial directors) have engineering qualifications. In Canada, an engineer, as a senior mandarin, has a lot in common with the maytag serviceman — it gets very lonely at times. Surely, the engineering profession has a great deal more to offer to the running of theis nation that it is currently contributing. I know that it is easier to sit back and ridicule the political process rather than to make the effort to change it. But, unless you are part of the process, you will have to accept the fact that most of the major decisions affecting your work and your life will be made by individuals whose backgrounds and training contain subtle but still important differences compared to those of an engineer. Furthermore, to the extent that we do have an image problem in the eyes of society, I don't think that abstinence from the political system is going to improve it.

Finally, let's return from those corridors of power to these halls of academia. In many ways, your personal decisions will affect how our profession is perceived as an element of the total community. As Pogo, that noted American observer of human nature once said, "We have met the enemy, and he is us". In the past, but to a leser extent now, a considerable number of engineers have been underemployed and, because of both inertia and insecurity brought on by a oversupply of engineers, we have let that situation persist. The fault lies both with the employer and the employee, but the fact that it did exist has added a degree of credance to the use of the word "technician" by other professionals when referring to an engineer. I was no exception, as I spent the first six months of my professional life recording the velocity of streamflows in British Columbia's Rivers. My employer, the crown, probably would have kept me in that "technical position" for several years if I had not had the great fortune of catching pneumonia, becoming delirious with fever and being hospitalized. During this period of delirium, my bride, obviously never doubting my ability to survive, told my superior that, when I recovered, I was quitting unless he had a job more in keeping with my superior training and talent. I didn't know for some months what had prompted my sudden move into the area of hydro project design for the Columbia River System which in turn led onwards into a very challenging and reward career.

Engineering the Economy

The point of all this is nt necessarily that engineers need more wives with high levels of faith in their husbands' competence, but rather that the underemployment that has existed in the past has done our profession a great disservice. It has debased the currency, and unfortunately it has produced too many engineers with a very narrow range of ambition an dinterest and therefore of competence.

Fortunately, given any reasonable degree of economic growth in Canada, there is much less danger of this type of underemployment existing in the future. You will not put up with it, nor can the employer afford it. This need to focus your talents on truly professional work, coupled with the pace of technological development, in my mind bodes nothing but good for you, for the profession, and for the image of the profession in the eyes of society. Someone once said that "The optimist proclaims that we live in the best of all possible worlds, while the pessimist fears that this is true". Clearly, neither is true; but the extent to which we can improve the world we live in will depend increasingly upon professions like engineering which carry a large part of the burden for the creation of new wealth. As society becomes increasingly aware of that fact, the image of the profession cannot help but improve.

The "Morning Smile" of the Globe and Mail the other day said "The trouble with each generation is that it hasn't read the minutes of the last meeting". Actually, in areas of our discipline, I wouldn't worry too much about the detail of those minutes, as for the most part neither the challenges nor the solutions are relevant to today's circumstances. However, some general guidance does emerge, especially from past mistakes. In terms of our collective relationship with the rest of society, that mistake has been to restrict that interface largely to that involving only the technical aspects of our professional practice. Hopefully, the new breed of engineers will go well beyond that be extending your horizons, by broadening your academic training and your interests into field like economics and by a much greater involvement in the political process of this country. Only then can we hope to see the engineering profession approach the kind of stature and respect it has achieved in other nations.

Eng. Soc. News

On Orientation and OPIRG

by Wayne Levin
Eng Soc President

While I was campaigning, I stressed the need for better communication between the Engineering Society and the Engineering Students. After all since it is your twenty-two dollars that allows us to operate you should know what is being done with your money. But the aim behind these reports will be to inform you of what is happening while it is still in the planning stages. The Engineering Society basically serves two functions: the first being to provide social and professional events for your entertainment and educational needs, the second is to allow you to gain experience in learning how to work with others. It is the second object which I feel is not being met effectively.

In response to this concern, I advocated while campaigning that I would instigate this report to inform you of who is in charge of specific events and when planning for these functions is to occur. I hope that you will take advantage of these reports by coming out and being a part of Skule. You will gain a lot of insight into the Engineering Society and who knows, you may have some fun.

What the Engineering Society needs most is you. every facet of the Eng. Soc. is in dire need of new ideas and new people. Very shortly, your Vice-President in charge of Activities, Peter Weick, will begin planning for next year's orientation. The structure and the success of this event rests on you. For next year, we have devised a plan which we hope will provide the f!rosh with a more personal introduction to the Engineering Society and the Engineering Athletic Association. The idea is to have each member of the orientation committee be responsible for 15 to 20 f!rosh. They will be "f!rosh under control" people or you-know-what for short. Each controller will be required to phone their group of f!rosh during the summer to ensure that they come out to such orientation events as the summer nights, orientation day, the scavenger hunt, the nurse wetting, Shinerama, and the like. Upper classmen will be assigned f-rosh according to their discipline, and will work directly under the club chairman. The main objective of this plan is to give the first year's a personal introduction into the Engineering Society. In other words to let them feel that they are needed.

Hopefully, the f!rosh will respond to this positively and will become involved not only in their first year but in the remaining three (or in some cases four or more) years as well. Unfortunately, at the time of writing, I am unaware of when the orientation committee will be meeting. However, you may check into the upcoming events section of this Cannon which will have the date, time and location. I urge you to come out. No doubt a lot of you present first years will want to inflict on others what was inflicted on you last September. It is a job I recommend highly. If enough of you come out we will be able to instigate the plan; if not, then orientation will be the same as always. Should you want to talk to somebody in the mean time, Peter Weick is usually available in the Stores any day at noon.

Wayne Levin has just assumed the duty of President of the Universlty of Toronto Engineering Soclety Incorporated.

On to a more serious matter. There is an organization starting up known as The Ontario Public Interest Research Group (O.P.I.R.G.). There basic objective is to fund research into areas of public concern. Areas such as Nuclear Power, Acid Rain, etc. I think that it would be appropriate to classify them as "Nader's Raiders'" types. This year they approached SAC to hold a referendum concurrent with the SAC general elections. They want to impose an incidental fee of five dollars per student. This includes you. If you do not wish to support this group then you may go to them within three weeks of paying your incidental fee and ask for a refund. They have already held a referendum with the Graduate Student's Union and at the time of writing I am not aware of the results. I feel however, that there is something dangerous in allowing this type of organization to receive funds from the students through an incidental payment.

For one thing they are not a student organization. This is why I strongly believe that SAC should not provide them with a means of holding this referendum. O.P.I.R.G. labels themselves as being an interface between the University and the Community. I cannot see the need for one in this instance. I think that they are merely trying to raise money and are going about it in the easiest way possible. If a referendum were to be held, and if it were to pass, they would receive a potential of about $135,000 ($5.00 x 27,000 undergraduate students). Sounds like an awful lot of money to me. There is also a concern in that it sets a precedent for any other group to hold a similar campaign.

Incidental fees are to support student groups and organizations and are meant to allow these student societies to collect money from the students and spend it on their behalf. I fail to see how O.P.I.R.G. will be able to spend the money collected to your benefit as a student. Why do they not set up display booths or promote some other sort of public campaign to make themselves visible? They should collect money on a strictly voluntary basis. But why are they not doing it? It seems obvious to me that they are looking for easy money. By the way they have succeeded in their effort at Guelph and at McMaster. However at McMaster, the Engineers held another referendum and got McMaster out of it. I spoke to one of the newly elected SAC Vice Presidents and he told me that he was against the idea. Of course he was campaigning at the time. If SAC holds the referedum next year, I think that we should hold our own referendum before hand, and we should also reconsider our position with SAC.

I want to know how you feel. This is a serious issue and it is only proper that all points be presented. Just drop off your arguments whether supporting, adding to or rebutting these views to *The Cannon,* in the Engineering Stores. Do you think that a special committee should be set up to look into this? Do you think that O.P.I.R.G. should be allowed to hold tbeir referendum? Think about it.

In closing I want to say that you will be seeing one of these reports in every *Cannon*. I want to do anything possible so that you will know what is being done and how to get involved in it. If you have any suggestions, please let them be known. On behalf of the Council that you have just elected, let me tell you that we will do everything possible to make 82/83 an eventful and prosperous year. Come out and be a part of what is going on and don't forget the Orientation Committee will be starting up very shortly. Good luck with your exams and have a good summer.

"Eng Soc Inc" is a Reality

by John Voss
exiting Vice Pres. Admin

After more tban a year and a balf of legal proceedings and paper-shuffling, the Engineering Society has finally achieved its goal of incorporation. The final steps were concluded witb the dissolution of the unincorporated Society at the Joint Council Meeting of March 17.

Tbe Society's long trek towrards legal incorporation began in 1980 when the Eng. Soc. Council called a referendum on whetber to pursue incorporation as a means to protect tbe members and officers of the Eng. Soc. against liability resulting from Eng. Soc. sponsored activities. As ao unincorporated body, the Society was not recognized as existing in law. Therefore, in the event of legal action, individuals would be sued, rather than the Society. For example, the Cannoneer might be sued over injuries arising from the use of the Canoon, or the V.P. Activities might be sued by an injured competitor in the Chariot Race. Now that the incorporation bas been achieved, bowever, these people would be protected from suit by the assets of the Engineering Society.

The Society's referendum on incorporation was held in Jaouary 1981, aod tbe proposal was heartily endorsed. Jobn Byrne, the Vice President: Administration, set about transforming the Society's constitution into a legal document that satisfied the requirements of the Corporations Act of Ontario. Ontario law dictates that an organization with the word "Engineering" in its legal title must have a professional engineer as a director of the company. The Engineering Society obviously could not meet this requiremeot, and had to obtain dispensation from tbe Association of Professional Engioeers of Ontario (APEO) to retain tbe name "Engineering Society". Similarly, Governing Couocil approval was necessary, since tbe incorporation affected the Society's status significantly, and since the Society wished to use the name "Uoiversity of Toronto".

The major stumbling block in the process was at Governing Council. Many members of tbe Personnel and Student Affairs Committee of Governing Council were unconvinced that incorporation was the best means of providing the Society with the liability protection it needed. Furtber, they were concerned that a successful Eng. Soc. incorporation would start a flood tide of student society incorporations before the committee had a policy to

continued on page 10

The Structure of the Engineering Society

A Manageable Bureaucracy

Earlier this month the Engineering Society elected its five officers for the 1982-83 term of office. The positions of President, Vice-President: Administration, Vice-President: Activities, Treasurer, and Secretary were contested. Class representatives to the Engineering Society Council and Faculty Council were also elected from the second and third year classes. First year students will elect their reps in the fall. Have you ever wondered what these people do, and how this bureaucracy called the Engineering Society works?

It's Easy!

It may seem complex at first, but on closer examination it becomes quite simple.

Each person, or group of people, is responsible to the group above, ultimate responsibility lying with the President. All levels of the organization are responsible to the rest of the Engineering Society Council, and through the class reps, to the Society at large.

President

As in most organizations, the President is responsible for nothing in particular, but for everything in general. Primarily, the President co-ordinates the efforts of those under him. He is voting member of all Standing and Special Committees of Council, and represents the Society on all suitable occasions. He is a member of the Council of Presidents at UofT (COPOUT) and of Faculty Council. In essence, the buck stopes here: problems affecting the Society from within or without are the responsibility of the President.

VP: Admin.

The VicePresident:Administration is second in command and assumes the President's responsibilities in his temporary absence. He is responsible for all financial and business affairs of the Society, such as its insurance policies, its paid employees, and the Engineering Stores. In conjunction with the Treasurer and the Executive Committee, he prepares the Society's operating budget. The V.P.:Admin. is also a voting member of all the Committees of Council.

VP: Activities

The Vice-President:Activities co-ordinates the work of the Standing and Special Committees of Council, the Affiliates (the Engineering Athletic Association and the course clubs), and the Faculty Council reps, through the Executive Faculty Council rep (EFCR). He oversees "all cultural, technical, educational, athletic, and social activities of the Society".

'Skule Spirit' is largely his department, and his work is most visible through events such as Orientation Week, Godiva Week, the Band, and the BFC. He is third in command, and is also a voting member of all Standing and Special committees of Council.

Treasurer

The Treasurer must keep the financial books of the society, in accordance with legal requirements. He is responsible for informing Council of its financial status, and must submit the Society's books for audit at the end of the fiscal year.

Secretary

The Secretary keeps the records of the Society, its minutes and archives. He is responsible for the business of Council, such as reserving Council chambers for meetings, notifying members of meetings, and the like.

Council

Most of the work of the Council is done by the appropriate committee. As shown in the diagram, there are nine standing committees, each responsible for a specific area of Society activity. Every class rep is required to be a member of a committee, although response to this requirement is generally poor. Special committees are created by Council when a specific need arises.

Faculty Council

Student representatives also have seats on Faculty Council, the administrative body of the Faculty of Applied Science and Engineering. One Faculty Council rep, usually a senior student, is appointed Executive Faculty Council Rep. He is in charge of the student reps, and is the official liason between the Engineering Society Council and the Faculty Council.

SAC

The Society elects six SAC directors in a general election in March. These are our representatives on the SAC Board of Directors. One SAC director is appointed chairman of the SAC Committee.

Executive

The five elected officers, the chairmen of the standing and special committees, the EFCR, and the chairman of the Affiliates form the Executive *Committee of the Society. This* corresponds to a parliamentary cabinet, and serves to make most of the policy decisions. The Engineering Alumni Association and the Faculty each appoint a representative to the Executive Committee, but they are not enfranchised.

Meetings

Both the Executive Committee and Council meet at least once a month. Other committees meet as often as necessary to conduct their business. Meetings of Council are conducted by a Speaker, appointed from among members of Council, whose job it is to control debate.

Get Involved

Members of the Society who are not elected to Council can still get involved in the Society, as many important positions within the organization are filled by appointment from the Society at large. The editors of Society publications, the BFC chief, the Chief Attilator, the leader of the LGMB, and the student manager of the Engineering Stores are all appointed in this manner.

Society members are welcome to attend meetings of Council or its committees. While they do not have a vote, they do have the right to speak from the floor and make their opinions known, subject to the rules of order of Council as imposed by the Speaker.

Even a brief overview such as this makes the operation of the *Society much more easily* understood. This organization is a workable one, and it provides for good student representation in the decision making process. Anyone with an interest can get involved in the Engineering Society. It is, in fact, a manageable bureaucracy.

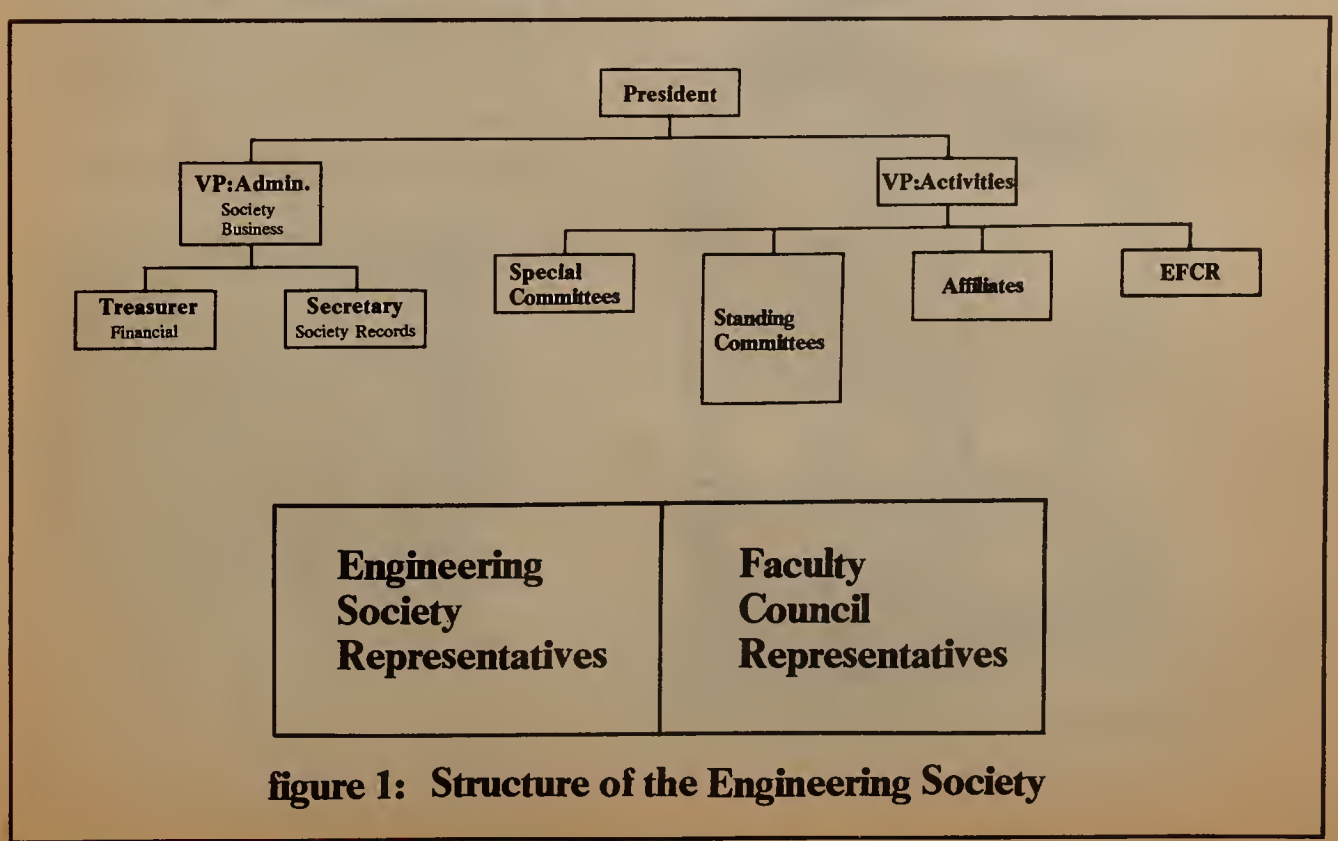


figure 1: Structure of the Engineering Society

Skule Athletics Wrap-Up

The 1982 S-Dance was a smashing success with the largest turnout in many years. Congratulations to Skule's athletes.

by June Li
EAA Publicity Director

The annual "S-Dance", held this year on March 12 at the Chelsea Inn, was a success. Over 150 people attended. This year, invitations were mailed to Skule athletes and about a hundred extra tickets were picked up at the Stores. Perhaps last year's failure was compounded by bad luck as it was held on Friday, March 13.

All of this year's winning Engineering teams and some of last year's were honoured with pewter steins and pen sets. Fifty-four "S" letters were awarded. An overwhelming 38 letters were claimed by the class of 8T2. Any fourth year student who had accumulated forty points receives a Bronze "S". This year, 21 Bronze awards were given out, compared to 9 to the 8T1 grads last year. The EAA class trophy was awarded to Chem 8T2, who won by a slim margin of 0.2 points per person.

The highest award of the night, the Special Bronze "S", was awarded to Dale Kerr. In her four years here, Dale has worked hard to maintain and increase Engineering's successful involvement in inter-faculty sports. Dale has been EAA president for the last 2 years and represented Engineering on the University Athletic Council. Besides these administrative duties, she still managed to accumulate over 120 "S" points.

For quite a few teams, their seasons had not yet ended by the time of the "S-Dance". The champions amongst these teams will receive their awards next year.

Most of these teams made the playoffs. This year engineering Women's squash 'A' repeated as champions while squash 'B', champions last year, lost in the finals at a 7 a.m. game.

In volleyball, Eng. Sci. advanced to the Division II finals where they were defeated 3-2. Compared to the last few years, this has been a very poor year. However, the women's volleyball teams were quite successful this year. Two were semi-finalists and one was a quarter-finalist.

Engineers were very consistent in placing semi-final teams. Besides the ones above, the other semi-final teams were Senior Eng. hockey, Junior Eng. hockey, Mech 8T3 hockey, women's hockey and the Senior Eng. basketball team. The women's innertube waterpolo team had not lost a game since January, 1980. But the winning streak came to an end in the semi-finals against the Trinity Saints. They should by congratulated for such a strong effort. The men's waterpolo team missed the playoffs by only one point. Although they were much stronger in the second half of the season, they could not overcome the three straight losses at the beginning of the season.

Overall this year although we haven't won many sports, participation has been very good, especially in the fall. Last year, we won the T. A. Reed and Marie Parkes trophies. The University Awards night is coming up soon and anything can happen.

By acclamation, next year's EAA President is Kathy Dumanski. Judith Vosko is Secretary-Treasurer and Lee Scott is Publicity Director. The Directors of men's and women's Athletics are, respectively, Greg Scott and Pam Selby. Good Luck to them next year.

Kathy Dumanski, next year's EAA President presents Kathy Underhill with the Female Athlete of the Year award (First year).

Incorporation

continued from page 8

handle them. This delay was costing the Society considerable amounts in legal fees, and the committee was finally convinced to approve the incorporation.

In order to expedite the legal proceedings at the Ministry of Consumer and Commercial Relations, three members of the Engineering Society were chosen to seek incorporation as "the University of Toronto Engineering Society". This incorporation was achieved in late February. David LeGresley, (Mech 8T1), John Byrne, (Eng Sci 8T1), and Brian Baetz (Civ 8T1) relinquished control of the incorporated Society to the 1981-82 Council on March 1, and the unincorporated Society was dissolved on March 17.

The Engineering Society now joins SAC as one of the few student societies with legal status and liability protection for its members and officers.

Engineering Alumni Athlete

Our last but definately not least winner is Dale Kerr. Above, Pam Selby presents Dale Kerr (left) with a pewter stein for being a member of the 1981 innertube waterpolo championship team. Dale was EAA President for 1981-82. At the recent Grad Ball, Dale was also awarded the "Skule Cannon" award for outstanding contribution to Engineering Activities. As Alumni Athlete, Dale receives a sports bag from the Engineering Alumni Association.

The EAA would like to thank the Alumni Association for sponsoring the 1981-82 Alumni Athlete Awards.

82-83 Class Reps

Class	Engineering Society	Faculty Council
Civil 8T3	Joe Halpert	Wayne Gibson
Civil 8T4	Brian Hayman	Craig Dunbar
Chem 8T3	Tim Hayes	Deborah Soanes
Chem 8T4	Jim Cleary	Glynn Jones
Mech 8T3	Margaret Bawden	Rob Zingel
Mech 8T4	Paul Blom	Paul Schindman
Ind 8T3	Brett Calder	Mauro Cicchelli
Ind 8T4	Barry Levine	Dennis Szechy
Elec 8T3	Mike Viemond	Paul Alves
Elec 8T4	Doug Michaelides	Ron McKenzie
MMS 8T3	Jamie Gerson	Alex Otto
MMS 8T4	Greg Forbes	Johannes Schade
Geo 8T3	Brian Lum	Glenn MacDonald
Geo 8T4	to be announced	to be announced
Eng Sci 8T3	Colin Doyle	Alex Triantis
Eng Sci 8T4	Bruce Christie	Rick VanKooten

Why are these people smiling?
Do you realize you could be too?
All it takes is a little time invested
in the Engineering Society.
You can't lose.

HOW TO GET INVOLVED

Now that the new officers of the society are in office, plans are well underway for next year. Class representatives have already been elected and from these people, the chairpersons of the various committees will be chosen. These committees do not operate on their own; many people are required to assist the chairperson in doing a successful job. To have a good year in extracurricular events, the Eng Soc needs all engineering students to participate in the Society's activities no matter in how large or small a way. Enough emphasis cannot be placed on the fact that anyone can join these committees. One does not need to be a class representative. Following is a list of the various committees and a brief explanation of their duties:

Blue and Gold. Responsible for co-ordination of the activities of the Lady Godiva Memorial Bnad, the BFC, Godiva Week (Boat Races, Resurrection, common-room marathon, Gang Bang, and Godiva's Wake), Homecoming float, Slave Auctions, etc.

Communications (or EngCom). The biggest committee. Responsible for overseeing all Society publications including their finances, production and content. Publications are the *Toike Oike*, *CANNON*, Yearbook, Frosh handbook, and Calendar. Executive officers include Publications Business Manager, Editors for all publications, and internal writers, productions staff, and photographers.

Fourth Year. Responsible for organizing Grad Ball, the Kipling Ritual, graduation photos, and other events pertaining to the graduating class.

Professional Development. Responsible for creating an awareness of engineering as a profession among Society members by bringing in speakers and arranging seminars. Also responsible for chosing delegates for conferences.

Social. Responsible for organizing Cannonball, Oktoberfest and a car rally.

Women's. Responsible for organizing social, professional and educational events of specific interest to undergraduate women members (through Wine and Cheese parties, guest speakers and a dinner).

Employment. Responsible for acting as a liaison between the placement centre and the Society and conduct a yearly Career seminar.

High School Liaison. Responsible for keeping in communication with high schools. This committee creates events that would sell the Faculty of Engineering to potential prospects (students) which in essence is to organize tours for grade thirteen students.

Shinerama (Special Committee). This group organizes Shinerama which takes place in early September. The proceeds from this event go to cystic fibrosis. Involved in this event is trying to get campus wide invovement, bed races, and a city wide shoe shining campaign.

Centennial (Special Committee). Responsible for organizing the Society's centennial in 84/85. This will be a big event and to make it as spectacular as possible is the group's goal.

In addition to the Chairperson-ships of the above committees, Eng. Soc. positions include **Toike Editor, CANNON Editor, Yearbook Editor, Handbook Editor, Publications Business Manager, Engineering Stores Manager, Society Archivist, and Executive Faculty Council representative.** Deadline for applications is Friday, April 2 at 5:00 p.m. An application signed by ten members of the Engineering Society must be submitted to Vice President: Activities, Peter Weick, and appointments will be made at the Eng Soc meeting of April 6.

Engineering This Month

If you are organizing an event, or know of one, that would be of specific interest to Eng. Soc. members, please drop a short note about it in the Tiny Toike box in the Society offices or contact Ella at 978-2917. It will be listed here free of charge.

Friday, April 2
Daffodil Day Parade

Okay, Bnad, here is another annual event! We will he in the Daffodil Day Parade which goes everywhere from here to there. For those who can make it, meet at the Band room at 10:30 a.m. and leave at 11:00 a.m. Fun? Whopee!

Monday, April 5
Yearbooks on Sale at the Stores

For those who are now desperately seeking the solace of owning a yearhook, hooks will be on sale at the Engineering Stores. This is really your last chance to buy a copy since quantities are limited. Don't miss out!

Tuesday, April 6
Eng Soc Meeting

There will he a full council meeting at 6:00 p.m. (NOT 5:00 p.m. as usual) in GB 202. All Engineering Society and Faculty Council representatives must attend. Due to the relativistic time dilation of the meeting, refreshments will appear shorter hut will also be more massive. Committee chairmen will also he chosen as part of the festivities.

Thursday, April 8
Orientation Committee Meeting

There will he a short organizational meeting for those wishing to he a part of next year's Orientation Committee at 12:30 in Room 330 of the Metro Lihrary. The "Frosh Under Control" scheme will he discussed.

Friday, April 9
Good Friday

Lectures and labs are cancelled and buildings closed today, so don't come to school. Regardless of your religion.

Friday, April 16
Yearbooks Arrive

For second, third and fourth year students who have already hought hooks, come to the Engineering Stores and get your yearbook. Be sure to bring your receipt! All F!rosh will receive their hooks the morning of their Calculus exam. Eng Sci F!rosh will receive theirs the same morning in their Algebra exam.

Lectures End

The end of the year is in sight! This is the end of spring term work, and before you can leave on that summer vacation, only one small detail is left...

Monday, April 19 to Friday, April 30
Final Exams

Argghhhhhhh!!! Good luck everyone, and a sincere hope that you all pass. See you next fall.

Monday, May 3
Homecoming/Oktoberfest Blue and White Society Committee Meeting

The Blue and White Society, the University wide spirit organization is reforming. After a high point of school spirit in the mid 1960's, the Blue and White Society died out in the early 1970's. But with a revival of student spirit recently, SAC has started to rehuild the Blue and White Society. The B&W Society will try to coordinate campus wide events, one of these heing Oktoberfest/Homecoming. The Homecoming Committee meeting will be at 7:00 p.m. at Hart House. Everyone interested in helping is welcome to attend.

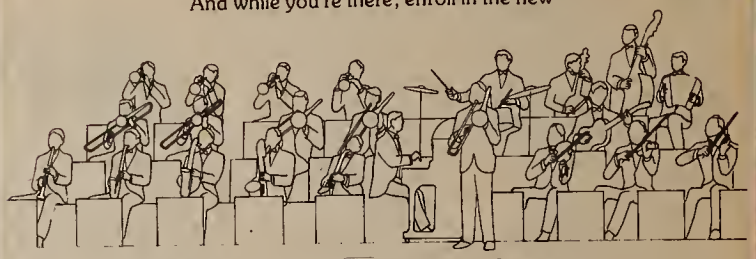
Monday, May 10
Blue and White Society General Meeting

A general meeting of all members of the Blue and White Society memhers will take place at Hart House at 7:00 p.m. Those interested in joining into the "grassroots" of this organization are urged to attend.

At the Stores

Thinking about Life Insurance?
Take two exam reprints
and call us in July.

And while you're there, enroll in the new



LGMB School of Music

and fish abattoire

Phone
978-2917
and ask for
Gerry or Dave
(Coke or Booze)

Can't qualify for Julliard, Eastman or even U of T Music? Too good for them all? Oh, oh, aren't WE getting snotty! Enroll anyway!

1982-83 Concert Schedule
Grey Cup Parade
Massey Hall Opening
Sporting (nudge, nudge) Events

BEFORE

AFTER

Ahhh right.

Isn't it the best beer you've ever tasted?